

4.12 HAZARDOUS MATERIALS AND/OR WASTE

The information contained in this section is based on the *SR-22 West Orange County Connection (SR-22/WOCC) Initial Site Assessment (ISA)* and the *ISA Reduced Build Alternative Addendum* (June 2000) and the Supplemental ISA (Enhanced) Reduced Build Alternative (December 2002), all of which are available under separate cover at the Department and OCTA. These technical studies identify potential contaminant sources adjacent to and within the project area that may have an impact on proposed improvements. This section includes discussions of impacts and possible mitigation measures related to hazardous materials and/or waste in the study area, and will focus primarily on the identified Preferred Alternative, (Enhanced) Reduced Build Alternative.

As a result of more detailed survey engineering plans, two Southern California Edison substations have been identified as partial acquisitions for both the (Enhanced) Reduced Build and the Full Build alternatives (See Table 4.6-8 and 4.6-16). The two substations have been analyzed and there are no hazardous waste issues associated with them.

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. The added limits to the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) and determined not to be substantial to Hazardous Materials and/or Waste. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

4.12.1 SOURCE OF CONTAMINATION

There are several ways in which a project can be affected by or cause impacts related to hazardous materials and waste:

First, previously identified hazardous materials or waste may lie within the path of construction, potentially exposing construction workers or the general public to impacts. These previously identified sites may include:

- Contaminated soil, either from intentional dumping or accidental spills or leaks
- Above-ground or underground storage tanks, pipes, reservoirs, etc., some of which may be leaking
- Debris or other above-ground or underground materials from an existing or previous land use, including industrial sites, commercial businesses, or landfills
- Materials contained within structures scheduled for demolition (such as lead paint or asbestos)

Another source of potential impacts is encountering the above-listed contaminants in previously unidentified sites.

A third type of potential impacts relates to migration of hazardous materials or waste through soil and water. A project may place people in an area previously affected by migration from hazardous sites, or may change the soil or drainage conditions in such a way that migration from hazardous sites is altered, impacting previously unaffected sites. This can expose people on the project site or in other areas to hazards.

A fourth source of potential hazardous impacts is the potential for exposing people to naturally occurring hazardous materials such as radon or methane gas. Construction may either release these materials or cause them to become more concentrated; either condition may be hazardous.

During construction, some materials used in roadway construction may be hazardous. The use of these materials may result in impacts to the general public and to construction workers. During operation of the facility hazardous materials such as pesticides and cleaning materials may also be used.

Finally, hazardous materials that are being transported over the project roadways may be accidentally spilled (or intentionally dumped).

4.12.2 PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

A. POSSIBLE ACQUISITION SITES WITH IDENTIFIED HAZARDOUS WASTE

In the DEIR/EIS, it was indicated that the following two sites are considered potential contaminant sites and need to be investigated further. However, based on information received from the Orange County Health Care Agency, the corrective action was completed for one of these sites, Firestone store #71F6, and the case closure was granted. These two sites may be acquired for the project, pending project approval, funding and final design decisions. Note: The Arco service station at 13511 Euclid Avenue, Garden Grove, shown as an acquisition in the DEIR/EIS, would not be acquired under the (Enhanced) Reduced Build Alternative. This non-residential property was eliminated as an acquisition due to refined engineering, which led to more narrowly defined right-of-way limits for the project.

1) Former UNOCAL 76 Service Station #5618

This property, located at 591 The City Drive in the City of Orange, may be fully acquired. This site was a UNOCAL service station and currently is a paved vacant lot with 17 monitoring wells on site. Based on the Santa Ana Regional Water Quality Control Board's (SARWQCB) records for this site, the groundwater beneath the site is contaminated due to leaking underground fuel tanks. Several phases of assessment and remedial activities have been conducted at the site. The property is currently subject to groundwater monitoring by the SARWQCB through August 2003.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned before it can be transferred. However, if the site is not remediated before it is transferred to the Department for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank
- Exposure to previously contaminated soil related to prior unauthorized release
- Contamination of nearby properties, surface water or groundwater during removal of underground storage tanks and associated pipes

See Figures 4.12-1 and 4.12-2 on the following page for photos of Former UNOCAL 76 Service Station #5618.



Figure 4.12-1
Former UNOCAL 76 Service Station, view looking South, SR-22 can be seen in the background.



Figure 4.12-2
Former UNOCAL 76 Service Station, view looking East

2) Firestone Store #71F6

This property, located at 3400 Metropolitan Drive in the City of Orange, may be partially acquired. This site was a Firestone Tire Store and is currently abandoned. See figures 4.12-3 and 4.12-4 to view photos of this location. Database records for this site indicate that there was an unauthorized release of petroleum products. Due to tank leakage, the soil beneath the site was contaminated. According to the Orange County Health Care Agency, the clean up of the impacted soil and mitigation process has been completed.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned before it can be transferred. However, if the site is not remediated before it is transferred to the Department for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank
- Exposure to previously contaminated soil related to prior unauthorized release
- Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes.



Figure 4.12-3
Firestone Store, North Elevation View



Figure 4.12-4
Firestone Store, South Elevation View

B. ACQUISITION SITES WITH PREVIOUSLY UNIDENTIFIED HAZARDOUS WASTE

There are five potential residential displacements and nine potential non-residential displacements included in the (Enhanced) Reduced Build Alternative (see Section 4.6). These properties may be acquired for the project, pending project approval, funding and final design decisions. Some of these structures may contain asbestos or lead-based paint. Inhalation of asbestos fibers can have serious health effects. It can cause asbestosis, a scarring of the lungs that leads to breathing problems and heart failure. Inhalation of asbestos can also cause lung cancer and mesothelioma, a rare cancer of the lining of the chest and abdomen. Lead poisoning can cause reduced intelligence, behavioral problems, learning disabilities and permanent brain damage (HUD, 2000). During demolition of structures containing these materials, construction workers may be exposed to these types of hazards.

There is a potential that unidentified hazardous material and waste sites within the study area may affect the (Enhanced) Build Alternative. Although state and federal records were checked, it is possible that some sites are not yet listed. There is also a potential for spills or discharges of hazardous materials that have not been reported. In addition, the soil in unpaved areas next to the traffic lanes or shoulders might be contaminated with lead from vehicle emissions (known as aerally deposited lead or ADL). Any of these unknown hazardous materials or wastes could affect construction workers and/or the general public if exposed during construction.

C. MIGRATION OF HAZARDOUS WASTE

In addition to the potential acquisition sites with previously identified or unidentified hazards that are located within the construction area for the (Enhanced) Reduced Build Alternative, there is a potential for the migration of hazardous materials to the construction site. Disturbance of the ground surface can result in changes in migration of contaminants from on-site to off-site, from off-site to on-site, or across the site. Table 4.12-1 lists sites within the study area associated with the (Enhanced) Reduced Build Alternative that may have contamination that could potentially migrate.

**Table 4.12-1
NON-ACQUISITION SITES ASSOCIATED WITH THE (ENHANCED) REDUCED BUILD ALTERNATIVE
THAT MAY HAVE CONTAMINATION THAT MAY MIGRATE**

| Site Name | Address | Site Status |
|--|--|--|
| Arco (former Thrifty Oil) | 13511 Euclid Avenue, Garden Grove, CA | This well-kept site, adjacent to the alignment, is an acquisition property, which has had an unauthorized release of product from an UST. Existing files were unclear regarding the current status of remediation. |
| 1-Day Paint and Body | 13612 Harbor Boulevard, Garden Grove, CA | This moderately kept site, adjacent to the alignment, is a RCRA generator (large). |
| Continental Mfg Systems (former) | 13331 Garden Grove Boulevard, Garden Grove, CA | This moderately kept site, on the alignment, is a RCRA generator (small). |
| Exxon Service Station #3792 | 13681 Magnolia Street, Garden Grove, CA | This well-kept site, adjacent to the alignment, (under construction/ excavation) has a LUST. |
| Mai's Auto | 13631 Harbor Boulevard, Garden Grove, CA | This unorganized site, adjacent to the alignment, is a RCRA generator (large) and has containers and drums on the site. |
| Nevada Investment Holdings (former) | 13881 Brookhurst Street, Garden Grove, CA | This well-kept site, adjacent to the alignment, has a LUST. |
| OCTA Base 4 | 11790 Cardinal Circle, Garden Grove, CA | This well-kept site, adjacent to the alignment, is a RCRA generator (large) and has a LUST, well casing/heads, a pump, and a large propane tank on the site. |
| Shell Service Station | 13642 Euclid Street, Garden Grove, CA | This moderately kept site, adjacent to the alternative, is a RCRA generator (large) and has a LUST, containers, drums and well casing/heads on the site. |
| Smith Kline Beecham(former) Currently is Bromar Inc. | 13272 Garden Grove Boulevard, Garden Grove, CA | This moderately kept site, on the alignment, is a RCRA generator (small). |
| Todd Pipe & Supply | 13591 Harbor Boulevard, Garden Grove, CA | This well-kept site, adjacent to the alignment, has a LUST and containers on the site. |
| Unocal Service Station #6355 | 12139 Trask Avenue, Garden Grove, CA | This vacant lot, adjacent to the alignment, has a LUST. |
| Slide Master (former) | 1111 Town & Country Road, Orange, CA | This well-kept site, adjacent to the alignment, is a RCRA generator (large). |
| Arco (former Thrifty Oil) | 2940 Bristol Street, North, Santa Ana, CA | This well-kept site, adjacent to the alignment, is an acquisition property. Existing files were unclear regarding the current status of remediation, however did show record of a waste oil tank removal in 1988. |
| GTE - Alamitos Central Office | 2400 Beverly Manor Road, Seal Beach, CA | This moderately kept site, adjacent to the alignment, is a RCRA generator (large) and has a LUST. |
| Chevron (former) | 13102 Goldenwest Street, Westminster, CA | This vacant lot, adjacent to the alignment, has a LUST. |
| Harley Davidson Westminster | 13031 Goldenwest Street, Westminster, CA | This well-kept site, adjacent to the alignment, is a RCRA generator (large) and has drums on the site. |
| Joe's Quality Cleaners | 13079 Springdale Street, Westminster, CA | This unorganized site, adjacent to the alignment, is a RCRA generator (large). |

Table 4.12-1 (continued)
NON-ACQUISITION SITES ASSOCIATED WITH THE (ENHANCED) REDUCED BUILD ALTERNATIVE
THAT MAY HAVE CONTAMINATION THAT MAY MIGRATE

| Site Name | Address | Reason for Concern |
|-----------------------|--|---|
| Orange Gate Investors | 5455 Garden Grove Boulevard, Westminster, CA | This well-kept site, adjacent to the alignment, has a LUST. |
| Sunset Ford | 5440 Garden Grove Boulevard, Westminster, CA | This well-kept site, adjacent to the alignment, has a LUST and is a RCRA generator. |

D. NATURALLY OCCURRING HAZARDOUS MATERIALS

There is a potential for naturally occurring materials such as radon and methane to surface as a result of the (Enhanced) Reduced Build Alternative. Disturbing the ground for the construction of the (Enhanced) Reduced Build Alternative may release radon and methane gases in the area. Exposure to these materials could threaten the health of people in the vicinity of the project, especially those working on it.

E. MATERIALS USED IN CONSTRUCTION AND MAINTENANCE

There may be hazardous materials used in the construction of the (Enhanced) Reduced Build Alternative. Because this alternative includes construction of roadway and connectors, a number of materials that may be hazardous may be used, including paving materials, chemicals and paints. During operation, pesticides and herbicides may be used in landscape maintenance. These materials may be a health threat to those people working on the project as well as others in the vicinity.

F. TRANSPORT OF HAZARDOUS MATERIALS

The (Enhanced) Reduced Build Alternative would not increase traffic volumes, but may relocate them. It would not generate hazardous materials or wastes that would require transport so it would not increase the risks related to transport of these materials. Inasmuch as the (Enhanced) Reduced Build Alternative improves roadway efficiency, accidents (including those involving transported hazardous materials) would be expected to decrease.

4.12.3 OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative assumes that no improvements would be made to the existing area beyond those already planned and approved. There would be no hazardous waste impacts resulting from the No Build Alternative beyond those addressed in previous environmental documents.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Since the TSM/Expanded Bus Service Alternative would not include any construction on SR-22, there would be negligible impacts related to hazardous materials and wastes.

3. FULL BUILD ALTERNATIVE

A. ACQUISITION SITES WITH PREVIOUSLY IDENTIFIED HAZARDS

There are five properties that may be acquired for the Full Build Alternative that are contamination sites. Two of those properties are listed in the (Enhanced) Reduced Build Alternative, Sec. 4.12.1A.

1) Arco (formerly Thrifty Oil), 13511 Euclid Avenue, Garden Grove. This well-kept site would be acquired to allow widening of SR-22. Database records indicate that there was an unauthorized release of a product from an underground storage tank. The records are unclear as to the current status of remediation. Figure 4.12-5 shows this site.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned up before it can be transferred. However, if the site is not remediated before it is transferred to Caltrans for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
 - Exposure to hazardous materials/wastes during removal of underground storage tank
 - Exposure to previously contaminated soil related to prior unauthorized release
- Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes.



Figure 4.12-5
Arco, 13511 Euclid Avenue, Garden Grove

2.) Arco (formerly Thrifty Oil), 2940 North Bristol Street, Santa Ana. This well-kept site would be acquired to allow widening of SR-22 and improvements to the Bristol Street/La Veta Avenue eastbound off-ramp. Database records indicate that a waste oil tank was removed in 1988. The records are unclear as to the current status of remediation. Figure 4.12-6 shows this site.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned up before it can be transferred. However, if the site is not remediated before it is

transferred to Caltrans for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank
- Exposure to previously contaminated soil
- Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes



Figure 4.12-6
Arco, 2940 North Bristol Street, Santa Ana

3.) Orange County Transportation Authority (OCTA) Base 4, 11790 Cardinal Circle, Garden Grove. This well-kept site would be acquired to provide for right-of-way for the Pacific Electric Arterial and its interchange with the SR-22. Database records indicate that the site is a RCRA generator (large) and has a LUST, well casing/heads, a pump, and a large propane tank on the site. This property is a partial acquisition. The portion of the property that would be acquired is currently used for parking. Figure 4.12-7 shows this site.



Figure 4.12-7
OCTA, 11790 Cardinal Circle, Garden Grove

Right-of-way for the Pacific Electric Arterial would require acquisition of a portion of this property that is currently used for parking. This area is separate from where hazardous materials are stored and handled. If the parcel for the property were to be split, it would be possible to avoid the area with hazardous materials.

If the whole site were acquired, remediation would be required at the site. Generally, site remediation is the responsibility of the current owner and the property must be cleaned up before it can be transferred. However, if the site is not remediated before it is transferred to Caltrans for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank and propane tank
- Exposure to previously contaminated soil
- Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes

B. ACQUISITION SITES WITH PREVIOUSLY UNIDENTIFIED HAZARADOUS WASTE

There are 189 residential displacements (128 of which are in multi-family buildings) and 35 non-residential displacements included in the Full Build Alternative (see Section 4.6). Some of these structures may contain asbestos or lead-based paint. Asbestos fibers can have serious health effects if inhaled. It can cause asbestosis, a scarring of the lungs that leads to breathing problems and heart failure. Inhalation of asbestos can also cause lung cancer and mesothelioma, a rare cancer of the lining of the chest and abdomen lining. Lead poisoning can cause reduced intelligence, behavioral problems, learning disabilities, and permanent brain damage (HUD, 2000). During demolition of structures containing these materials, construction workers may be exposed to these types of hazards.

There is a potential that unidentified hazardous material and waste sites within the study area may affect the Full Build Alternative. Although state and federal records were checked, it is possible that some sites may not yet be listed. There is also a potential for there to be spills or discharges of hazardous materials that have not been reported. In addition, the soil in unpaved areas next to the traffic lanes or shoulders might be contaminated with lead from vehicle emissions (known as aerially deposited lead or ADL). Any of these unknown hazardous materials or wastes could affect construction workers and/or the general public if exposed during construction.

C. MIGRATION

In addition to identified and unidentified sites located within the construction area for the Full Build Alternative, there is also the potential for the migration of hazardous materials to the construction site. Disturbance of the ground surface can result in changes in migration of contaminants from on-site to off-site, from off-site to on-site, or across the site. Table 4.12-1 lists the number of sites within the study area associated with the Full Build Alternative that potentially may have contamination that may migrate.

Table 4.12-2
NON-ACQUISITION SITES ASSOCIATED WITH THE FULL BUILD ALTERNATIVE THAT
POTENTIALLY MAY HAVE CONTAMINATION THAT MAY MIGRATE

| Site Name | Address | Site Status |
|---|---|--|
| 1-Day Paint and Body | 13612 Harbor Boulevard, Garden Grove, CA | This moderately kept site, adjacent to the alignment, is a RCRA generator (large). |
| Best Metal Polishing | 13782 A Better Way, Garden Grove, CA | This moderately kept site, adjacent to the alignment, has a LUST |
| Cay's Sewing | 11611 Salinaz Drive, Garden Grove, CA | This moderately kept site, adjacent to the alignment, is a RCRA generator (small). |
| Continental Mfg Systems (former) | 13331 Garden Grove Boulevard, Garden Grove | This moderately kept site, adjacent to the alignment, is a RCRA generator (small). |
| CSL Sportswear | 13841 West Street, Garden Grove | This moderately kept site, adjacent to the alignment, is a RCRA generator (small). |
| Exxon Service Station #3060 | 13512 Euclid Street, Garden Grove | This well-kept site, adjacent to the alignment, is a UST site |
| Exxon Service Station #3792 | 13681 Magnolia Street, Garden Grove | This well-kept site, adjacent to the alignment, (under construction/ excavation) has a LUST. |
| Filong Auto Body | 13812 West Street, Garden Grove | This moderately kept site, adjacent to the alignment, is a RCRA generator (small). |
| H-Auto Dismantling | 13781 West Street, Garden Grove | This well-kept site, adjacent to the alignment, has a LUST and containers on the site. |
| J&F Machining (former), currently is South Coast Bobcat | 13821 West Street, Garden Grove | This moderately kept site, adjacent to the alignment, is a RCRA generator (small). |
| Mai's Auto | 13631 Harbor Boulevard, Garden Grove, CA | This unorganized site, adjacent to the alignment, is a RCRA generator (large) and has containers and drums on the site. |
| Mobil Service Station #18-GX7 | 13172 Garden Grove Blvd, Garden Grove | This well-kept site, adjacent to the alignment, is a UST site |
| Nevada Investment Holdings (former) | 13881 Brookhurst Street, Garden Grove, CA | This well-kept site, adjacent to the alignment, has a LUST. |
| PL Sunrise | 13832 West Street, Garden Grove | This moderately kept site, adjacent to the alignment, is a RCRA generator (small). |
| Pool Water Products (PWP) | 11572 Salinaz Drive, Garden Grove | This moderately kept site, adjacent to the alignment, is a RCRA generator (small). |
| Seal Black Company Inc. | 13182 A Better Way, Garden Grove | This unorganized site, adjacent to the alignment, is an ERNS site and has a LUST. |
| Shell Service Station | 13642 Euclid Street, Garden Grove, CA | This moderately kept site, adjacent to the alternative, is a RCRA generator (large) and has a LUST, containers, drums and well casing/heads on the site. |
| Smith Kline Beecham(former) Currently is Bromar Inc. | 13272 Garden Grove Boulevard, Garden Grove, CA | This moderately kept site, on the alignment, is a RCRA generator (small). |
| Todd Pipe & Supply | 13591 Harbor Boulevard, Garden Grove, CA | This well-kept site, adjacent to the alignment, has a LUST and containers on the site. |

Table 4.12-2 (continued)
NON-ACQUISITION SITES ASSOCIATED WITH THE FULL BUILD ALTERNATIVE THAT
POTENTIALLY MAY HAVE CONTAMINATION THAT MAY MIGRATE

| Site Name | Address | Site Status |
|-------------------------------|---|--|
| Unocal Service Station #6355 | 12139 Trask Avenue, Garden Grove, CA | This vacant lot, adjacent to the alignment, has a LUST. |
| Unocal Service Station #4872 | 13152 Garden Grove Blvd., Garden Grove | This well-kept site, adjacent to the alignment, is a UST site |
| Shell Station 204-5664-1008 | 889 South Tustin/Fairhaven, Orange | This well-kept site, adjacent to the alignment, is a RCRA generator (large). |
| Slide Master (former) | 1111 Town & Country Road, Orange, CA | This well-kept site, adjacent to the alignment, is a RCRA generator (large). |
| Auburn Brass Inc. | 2501 5 th Street, West, Santa Ana | This well-kept site, adjacent to the alignment, is a RCRA generator (large). |
| Chemlink Petroleum Company | 2310 West Cape Cod Way, Santa Ana | This well-kept site, adjacent to the alignment, is a RCRA generator (Small). |
| Nuart Signmakers (former) | 2317 2 nd Street West, Santa Ana | This moderately kept vacant site, has a LUST. |
| Santa Ana Auto & Transmission | 625 N. Fairview Street, Santa Ana | This moderately kept site, is a RCRA generator (small) |
| Santa Ana Electric Motors | 2225 2 nd Street West, Santa Ana | This moderately kept site, is a RCRA generator (large) |
| Shell Station 204-6936-2303 | 1220 E. Fairhaven Avenue, Santa Ana | This former service station lot, is now empty and is a RCRA generator (large) |
| Tri Level Inc. | 2341 W. Cape Cod Way, Santa Ana | This well-kept site, adjacent to the alignment, is a RCRA generator (small). |
| GTE - Alamitos Central Office | 2400 Beverly Manor Road, Seal Beach, CA | This moderately kept site, adjacent to the alignment, is a RCRA generator (large) and has a LUST. |
| Chevron (former) | 13102 Goldenwest Street, Westminster, CA | This vacant lot, adjacent to the alignment, has a LUST. |
| Harley Davidson Westminster | 13031 Goldenwest Street, Westminster, CA | This well-kept site, adjacent to the alignment, is a RCRA generator (large) and has drums on the site. |
| Joe's Quality Cleaners | 13079 Springdale Street, Westminster, CA | This unorganized site, adjacent to the alignment, is a RCRA generator (large). |
| Orange Gate Investors | 5455 Garden Grove Boulevard, Westminster, CA | This well-kept site, adjacent to the alignment, has a LUST. |
| Sunset Ford | 5440 Garden Grove Boulevard, Westminster, CA | This well-kept site, adjacent to the alignment, has a LUST and is a RCRA generator. |

D. NATURALLY OCCURRING HAZARDOUS MATERIALS

There is a potential for naturally occurring materials such as radon and methane to affect the Full Build Alternative. Disturbing the surface of the ground for the construction of the Full Build

Alternative may release radon and methane gases in the area. The Pacific Electric Arterial, in particular, is a potential concern for the Full Build Alternative because it would require a high level of ground preparation. Exposure to these materials could threaten the health of people in the vicinity of the project, especially those people working on the project.

E. MATERIALS USED IN CONSTRUCTION AND MAINTENANCE

There may be hazardous materials used in the construction of the Full Build Alternative. Because the Full Build Alternative includes construction of roadway, connectors, and the Pacific Electric Arterial, a number of materials that may be hazardous may be used. These materials may include paving materials, chemicals, and paints. During operation, pesticides and herbicides may be used in landscape maintenance. These materials may be a potential health threat to those people working on the project as well as others in the vicinity.

F. TRANSPORT OF HAZARDOUS MATERIALS

The Full Build Alternative would not increase traffic volumes, but may relocate them. It would not generate hazardous materials or wastes that would require transport (except those discussed above in E, Materials Used in Construction and Maintenance), so it would not increase the risks related to transport of these materials. In as much as the Full Build Alternative improves roadway efficiency, accidents, including those involving transported hazardous materials, would be expected to decrease.

4.12.4 MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

HAZ-(E)RB-1. An Initial Site Assessment (ISA) will be conducted during project design to identify the potential contamination sources within the existing and proposed right of way that may have an impact on proposed improvements. The ISA process involves an environmental database search to identify regulated sites, a historical review to determine past operational and land uses of the site(s) and adjacent areas, and a site inspection to determine evidence of potential contamination. Based on the results of the ISA, the need for intrusive Site Investigation (SI) work can be better evaluated.

The SI process includes sampling and analysis of impacted soil or groundwater at the sites with the potential for encountering contamination during project activities. The SI may detect the presence of contamination, and it may provide preliminary estimates of the nature and extent of the contamination through sampling and analysis of soil and water. If necessary, the SI will indicate if there is a need for the remedial and clean up action.

Given the nature of the sites identified in the Initial Site Assessment, it is likely that some level of SI investigation will be required for acquisition properties. Because there are properties that are not subject to acquisition but are also potential contamination sources that could affect the project, it is probable that some level of SI work will be required within the project's right-of-way limits to evaluate potential impacts to the project from these off-site sources. In addition, it may be appropriate to perform some level of systematic groundwater sampling within areas where groundwater could be encountered during construction. Such sampling may be performed in conjunction with other SI efforts. Soil samples will be collected, tested and analyzed for lead contamination during the Plans, Specifications and Estimates (PS&E) stage of this project. The design consultant will conduct the lead investigation during the early stage of design. If lead contamination is found, the results/conclusions will be included in the PS&E package and the Resident Engineer's File by the design consultant.

There are many processes for mitigating hazardous materials impacts. The mitigation measures to be used must be determined during the SI process. If at any time in the design and

construction phases prescribed mitigation is not carried out, additional environmental documentation pursuant to NEPA and CEQA must be completed to disclose unmitigated impacts.

During construction, the contractor will implement procedures developed during the ISA/SI and supplemental environmental analysis. These may include implementation of a site-specific health and safety plan, site-specific contaminant management plans, removal of storage tanks, and a general construction contingency plan.

HAZ-(E)RB-2. A health and safety plan will be developed to guide all construction activities. A certified industrial hygienist will prepare the plan based on evaluations of the proposed construction activities and the potential hazards identified in the ISA/SI. The plan will contain specific procedures for encountering both expected and unexpected contaminants. The plan will prescribe safe work practices, contaminant monitoring, personal protective equipment, emergency response procedures and safety training requirements for the protection of construction workers and third parties. The health and safety plan will meet the requirements of 29 CFR 1910 and all other applicable federal, state and local regulations and requirements.

HAZ-(E)RB-3. A soils and groundwater contaminant management plan will be implemented during construction if the SI finds or suspects contamination. The plan will include procedures for contaminant monitoring and identification, temporary storage, handling, treatment and disposal of materials in accordance with applicable federal, state and local regulations and requirements.

HAZ-(E)RB-4. Removal of above-ground and underground storage tanks, if present, may also be required. All procedures for removing tanks, including sampling procedures, must be in accordance with all applicable federal, state, and local regulations. Old abandoned tanks that are not registered could possibly be present within the project limits. The contractor must be prepared to handle these types of tanks during construction, as described in the next mitigation measure.

HAZ-(E)RB-5. Before construction begins, a contingency plan will be in place to address such events as discovery of unidentified underground storage tanks, hazardous material(s), petroleum hydrocarbons, or hazardous or solid wastes during construction. This contingency plan will address underground storage tank decommissioning, field screening and material testing methods, mitigation and contaminant management requirements, and health and safety requirements for construction workers. If an unexpected release of hazardous substances is found in reportable quantities, the National Response Center must be notified and clean up coordinated with environmental agencies.

HAZ-(E)RB-6. All structures that would be demolished as part of construction will undergo an evaluation for the presence of asbestos-containing materials prior to demolition. The exact number and location of acquisitions will be identified during final design.

Sample collection procedures will be based on the Asbestos Hazard Emergency Response Act (AHERA) protocols and Environmental Protection Agency (EPA) guidelines. Surveys will be conducted following modified AHERA, Occupational Safety and Health Administration (OSHA) Asbestos Construction Standard, 29 CFR 926.1101, and applicable regulations under the federal National Emission Standard for Hazardous Air Pollutants (NESHAP). State and local regulations will be incorporated where applicable. An EPA/AHERA-certified building inspector will collect samples.

Standard procedures for surveys include:

- Initial facility walk-through
- Review of facility drawings for accuracy
- Identification of suspected asbestos-containing materials
- Collection of suspect material samples and placement into separate, sealed sample bags
- Assignment of a unique sample number

- Recording of data on sample bags and information on samples onto field notes
- Recording sample locations on plan drawings
- Decontamination of sampling tools after collection of each sample
- Delivery of samples to an accredited laboratory for analysis, accompanied by a completed chain of custody form

Laboratories accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) will analyze samples.

The samples will be analyzed using the following methods:

- EPA Interim Method for the Detection of Asbestos in Bulk Insulation Samples EPA 600/M4-82020 (December 1982)
- McCrone Research Institute's *The Asbestos Particle Atlas*

The samples will be analyzed using Polarized Light Microscopy (PLM) visual area estimation (VAE). Materials containing less than ten percent asbestos by PLM-VAE may be re-analyzed by PLM point counting. Additional treatment and tests may be used as required to accurately define the composition (i.e., washing, extractions, and transmission electron microscopy).

Classifications and determination of asbestos-containing material (ACM) is to be based upon all current regulatory information including NESHAP clarifications and multi-layered systems as published in the *Federal Register*.

HAZ-(E)RB-7. All structures that would be demolished as part of construction will also undergo an evaluation for the presence of lead-based paint (LBP) prior to demolition. The Resource Conservation Recovery Act (RCRA), 40 CFR 261, requires the generator of construction demolition waste to characterize the wastes to determine if they are "hazardous wastes" with special disposal requirements. If LBP is discovered, proper disposal procedures will be enacted.

HAZ-(E)RB-8. Any soil adjacent to existing highways to be disturbed during construction that will be reused will be tested for Aerially Deposited Lead (ADL). If the total lead concentration is less than or equal to 1496 milligrams per kilogram (mg/kg) (1496 ppm), the soil may be reused under the following circumstances:

If the soluble lead concentration is less than or equal to 0.5 mg/liter (using de-ionized water as a buffer) and the pH is greater than or equal to 5.0, the soil can be reused with the following restrictions:

- It must be placed 1.5 meters (five feet) above the high water-table mark; and
- It must be covered with 0.3 meter (one foot) of non-hazardous soil.

If the soluble lead concentration is less than 50 mg/liter (using de-ionized water as a buffer), the soil can be reused with the following restrictions:

- It must be placed 1.5 meters (five feet) above the high water-table mark; and
- It must be covered with pavement.

If the lead-contaminated soil does not meet these restrictions it cannot be reused and must be disposed of at a Class I disposal site.

HAZ-(E)RB-9. Areas prone to radon gas will be tested prior to demolition or construction operations for the project. The EPA recommends both long-term (90-day) and short-term (two-day) testing of structures to determine levels of radon gas. If hazardous levels of radon are found, measures will be taken to reduce risk.

HAZ-(E)RB-10. Areas prone to methane gas will be tested prior to demolition or construction operations for the project. If hazardous levels of methane are found, measures will be taken to reduce risk.

HAZ-(E)RB-11. Materials used in construction and maintenance of the project will be evaluated prior to use for their level of hazard. Manufacturer's directions and warnings will be followed during use. In addition, recommended appropriate safety equipment will be used for each material.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None required.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None required.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would require the same mitigation measures as listed above under (Enhanced) Reduced Build Alternative.

4.12.5 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Less than substantial.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Less than substantial.

C. FULL BUILD ALTERNATIVE

Less than substantial.